

## **REMARKS**

Claims 1-12 are pending in the present application. Claims 1-12 have been amended and claims 13-24 have been canceled. Claim 1 is independent. The specification has been amended. Reconsideration of this application, as amended, is respectfully requested.

### **Election/Restriction**

The Examiner has made the Restriction Requirement of February 7, 2005 final. As the Examiner will note, withdrawn claims 13-24 have been canceled without prejudice to or disclaimer of the subject matter contained therein. Applicant reserves the right to file a Divisional Application directed to the non-elected claims at a later date if it is so desired.

### **Foreign Priority**

The Examiner acknowledges Applicant's claim for foreign priority and receipt of the certified copies of the priority documents. However, the Examiner indicates that a "legible" copy of the certified documents has not been received. Specifically, the Examiner notes that the "seal" is not legible. Applicant respectfully submits that the priority documents submitted with the letter dated March 30, 2004 included a proper seal that was legible at the time of submission to the U.S. Patent Office. It appears that the U.S. Patent Office has removed the seals on the priority documents prior to scanning these documents into the

U.S. Patent Office database. The copies of the priority documents in Applicant's file include a legible seal thereon. Attached hereto is a copy of the priority letter dated March 30, 2004 along with copies of the first page of the priority documents, which include legible seals that indicate the Commonwealth of Australian Patent Office. It is believed that submission of these copies of the priority document are sufficient to satisfy the Examiner's request for a legible copy of the priority documents, since it was the U.S. Patent Office and not Applicant that improperly scanned the priority documents into the system.

#### **Amendments to the Specification**

The Examiner has set forth the preferred arrangement of the specification. As recognized by the Examiner, the arrangement of the specification provided in 37 C.F.R. § 1.77(b) is a suggested guideline and not a requirement. However, in order to place the present application into better form for U.S. practice, the present specification has been amended to provide proper headings where appropriate. In addition, a brief description of the drawings has been provided.

In view of the above, it is believed that the specification is in proper form.

#### **Rejections Under 35 U.S.C. § 112**

Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph, as based on a disclosure which is not enabling. In addition, claims 1-12 stand rejected under 35 U.S.C. §

112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. These rejections are respectfully traversed.

With regard to the Examiner's rejection under 35 U.S.C. § 112, first paragraph, the Examiner asserts that the disclosure is not enabling, since the claims do not recite the steps of applying the glassy dielectric layer on the substrate. While not conceding to the appropriateness of the Examiner's rejection, but merely to expedite prosecution, as the Examiner will note, independent claim 1 has been amended to recite the step of applying a glassy dielectric layer upon at least one surface of the substrate. In view of this, Applicant submits that claims 1-12 are in conformance with 35 U.S.C. § 112, first paragraph.

With regard to the Examiner's rejection under 35 U.S.C. § 112, second paragraph, as the Examiner will note, dependent claims 3, 10 and 12 have been amended, taking into consideration the deficiencies pointed out by the Examiner. Applicant submits that claims 1-12 are now definite and clear.

In view of the above amendments and remarks, Applicant respectfully submits that claims 1-12 are based on an enabled disclosure, are definite and clear. Accordingly, reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. §§ 112, first and second paragraphs are respectfully requested.

### **Rejection Under 35 U.S.C. § 103**

Claims 1-12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over DE 383598. This rejection is respectfully traversed. At the outset, it is respectfully pointed out that the present application includes only one inventor. In view of this, the Examiner's comments at page 6, last paragraph of the Examiner's Office Action are irrelevant to the present application.

With regard to the merits of the Examiner's rejection, Applicant respectfully submits that independent claim 1 clearly defines the present invention over the DE '598 reference to Zimmerman. Specifically, independent claim 1 is directed to a process for manufacturing a thick-film circuit on a titanium or titanium-alloy substrate. Independent claim 1 includes a combination of steps including "applying a glassy dielectric layer upon at least one surface of said substrate and firing said glassy dielectric layer in an oxidizing atmosphere." Applicant submits that the Zimmerman reference relied on by the Examiner fails to teach or suggest the present invention as recited in independent claim 1.

Referring to the Zimmerman reference, this reference discloses a method for producing electronic circuits for thick-film circuits. However, Zimmerman is concerned with firing in an inert atmosphere and not an oxidizing atmosphere as recited in independent claim 1 of the present invention. One disadvantage of firing in an inert atmosphere is that it limits the range of commercially available materials for creating full thick film hybrid technology and hence utilizing the inherent advantages of a titanium substrate. The

present invention on the other hand has available to it the full range of special inks, pastes and compositions etc. that are used to create hybrid circuit components such as capacitors, thermistors and strain gauges. Since Zimmerman fails to disclose firing a dielectric layer in an oxidizing atmosphere, Applicant submits that the Zimmerman reference fails to anticipate independent claim 1 of the present invention for at least this reason.

In addition, with regard to the Examiner's position that it would have been obvious to modify Zimmerman to utilize a glassy insulating layer, Applicant submits that the Examiner has not established a *prima facie* case of obviousness. In order to establish a *prima facie* case of obviousness, the Examiner must provide a suggestion in the prior art to modify a particular reference in a particular manner. In the present situation, the Examiner has merely taken the position that it would have been within the skill of one practicing in the art to modify the Zimmerman reference to utilize a glassy insulating layer. However, the Examiner has not provided any suggestion in the prior art that such modification would be obvious. In view of this, the Examiner's rejection is improper and should be withdrawn.

To the extent the Examiner is taking official notice that one of ordinary skill in the art would know to utilize a glassy insulating layer in the Zimmerman process, it is requested that the Examiner provide a reference that discloses such teaching if the Examiner persists in the rejection of independent claim 1.

With regard to dependent claims 4-12, Applicant respectfully submits that these claims are allowable due to their dependence upon allowable independent claim 1, as well as due to the additional recitations in these claims.

For example, claim 3 recites the step of diffusing lead content in the glassy layer through titanium oxides to enhance sufficiency of the bond between the substrate and the adjacent dielectric layer. Claim 5 recites selecting materials and layer thicknesses according to their TCE (Temperature Coefficient of Expansion) to control bending of the substrate. The latter feature facilitates use of very thin titanium substrates to enhance sensitivity to fluid pressure of flow sensors that are constructed with thick film hybrid circuits upon the titanium substrate. Applicant is currently using 0.4mm titanium in production. However, it should be understood that titanium having a different thickness could also be used. Claim 6 recites placing a sacrificial layer of dielectric material on a reverse side of the substrate to restrict growth of titanium oxide during the firing. The sacrificial layer also limits bending of the substrate. None of these features are disclosed or suggested by Zimmerman. In view of this, the Examiner's rejection of these claims is also improper and should be withdrawn.

In view of the above, Applicant submits that claims 1-12 clearly define the present invention over references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. § 103 are respectfully requested. To the extent the Examiner does not agree that the claims of the present application define

over the Zimmerman request, it is requested that the Examiner provide a translation of the Zimmerman reference into the English language.

### **CONCLUSION**

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but merely to show the state-of-the-art, no further comments are deemed necessary with respect thereto.

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently pending rejections and that they be withdrawn.

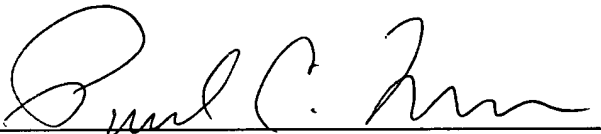
It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By: 

Paul C. Lewis, #43,368

P.O. Box 747

Falls Church, VA 22040-0747

(703) 205-8000

PCL/cl  
0044-0251P